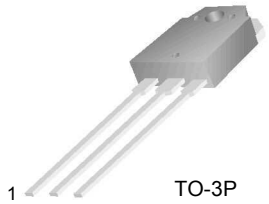
FAIRCHILD SEMICONDUCTOR®

October 2008

FJA13009
High Speed Switching

- Suitable for Switching Regulator and Motor Control
- High Voltage Switch Mode Applications



1 TO-3P

1.Base 2.Collector 3.Emitter

Absolute Maximum Ratings* T_a = 25°C unless otherwise noted

Symbol	Parameter	Ratings	Units
V_{CBO}	Collector-Base Voltage	700	V
V_{CEO}	Collector-Emitter Voltage	400	V
V_{EBO}	Emitter-Base Voltage	9	V
I_C	Collector Current (DC)	12	A
I_{CP}	Collector Current (Pulse)	24	A
I_B	Base Current	6	A
P_C	Collector Dissipation (T_C=25°C)	130	W
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature	- 65 ~ 150	°C

* These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

Electrical Characteristics* T_a=25°C unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
V_{CEO}(sus)	Collector-Emitter Sustaining Voltage	I_C = 10mA, I_B = 0	400			V
I_{EBO}	Emitter Cut-off Current	V_{EB} = 7V, I_C = 0			1	mA
h_{FE}	DC Current Gain	V_{CE} = 5V, I_C = 5A V_{CE} = 5V, I_C = 8A	8 6		40 30	
V_{CE}(sat)	Collector-Emitter Saturation Voltage	I_C = 5A, I_B = 1A I_C = 8A, I_B = 1.6A I_C = 12A, I_B = 3A			1 1.5 3	V V V
V_{BE}(sat)	Base-Emitter Saturation Voltage	I_C = 5A, I_B = 1A I_C = 8A, I_B = 1.6A			1.2 1.6	V V
C_{ob}	Output Capacitance	V_{CB} = 10V , f = 0.1MHz		180		pF
f_T	Current Gain Bandwidth Product	V_{CE} = 10V, I_C = 0.5A	4			MHz
t_{ON}	Turn On Time	V_{CC} =125V, I_C = 8A I_{B1} = - I_{B2} = 1.6A R_L = 15,6Ω			1.1	μs
t_{STG}	Storage Time				3	μs
t_F	Fall Time				0.7	μs

* Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%

Typical Characteristics

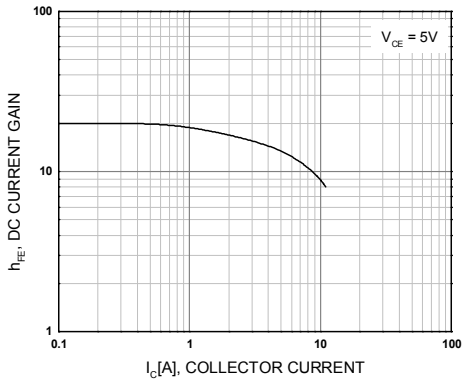


Figure 1. DC current Gain

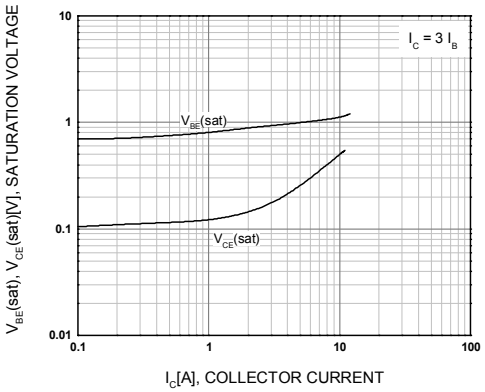


Figure 2. Base-Emitter Saturation Voltage Collector-Emitter Saturation Voltage

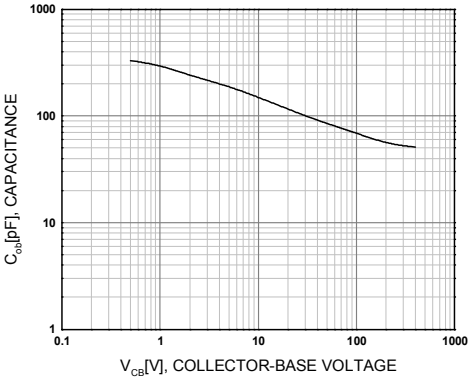


Figure 3. Collector Output Capacitance

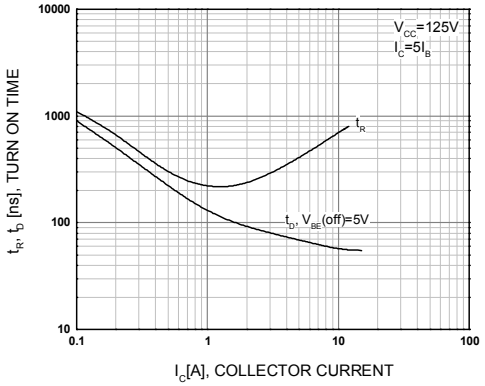


Figure 4. Turn On Time

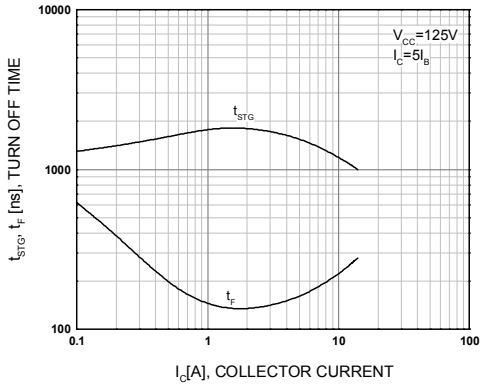


Figure 5. Turn Off Time

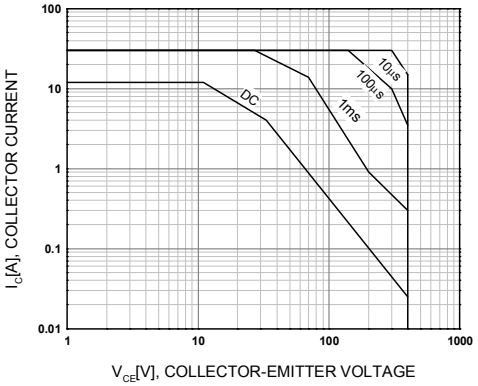


Figure 6. Forward Bias Safe Operating Area

Typical Characteristics

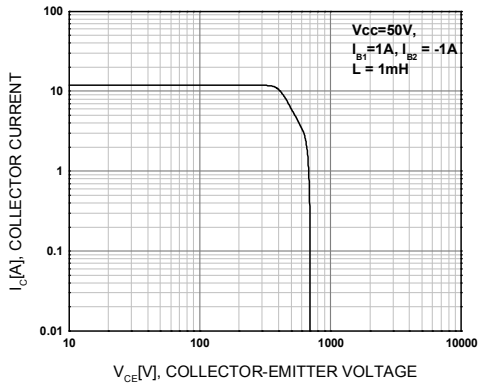


Figure 7. Reverse Bias Safe Operating Area

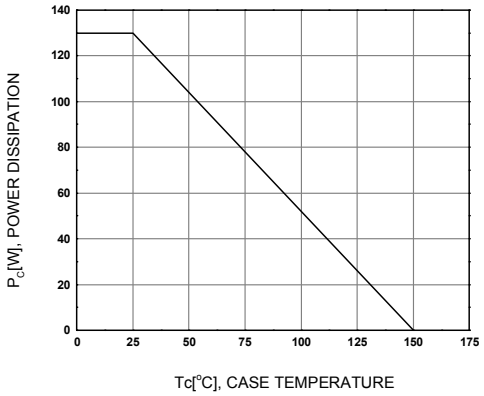
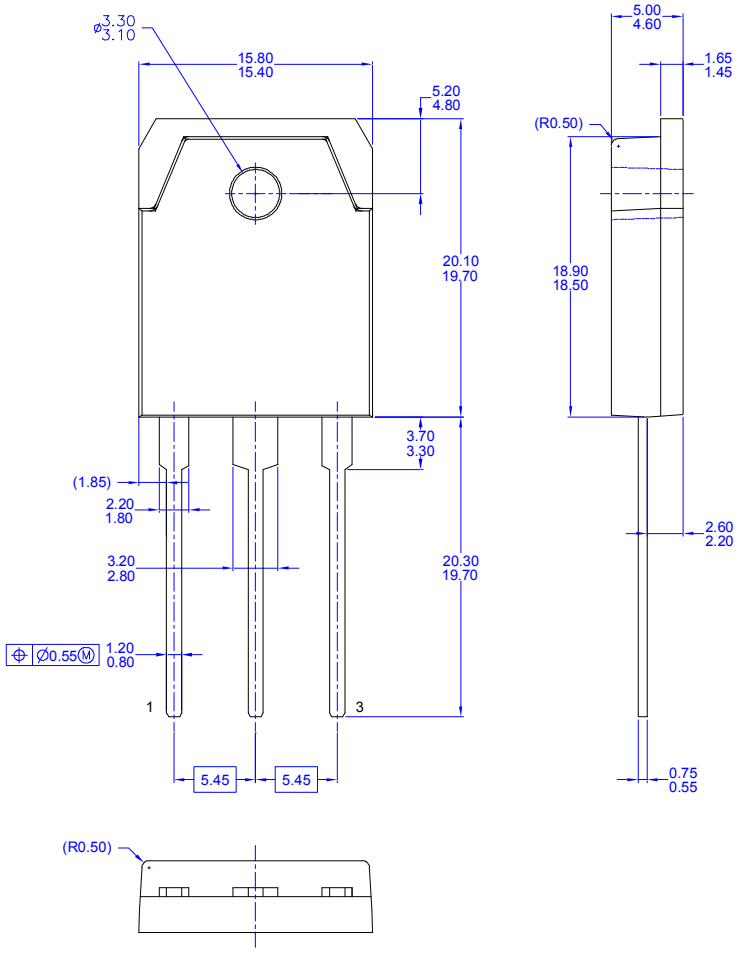


Figure 8. Power Derating

Package Dimension (TO-3P)



NOTES:
A) THIS PACKAGE CONFORMS TO EIAJ SC-65 PACKAGING STANDARD.
B) ALL DIMENSIONS ARE IN MILLIMETERS.
C) DIMENSIONING AND TOLERANCING PER ASME14.5 1973.
D) DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH, AND TIE BAR EXTRUSIONS.
E) DRAWING FILE NAME: TO3P03AREV2.

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